

REMARKS

The Office Action Summary indicated that the previous reply to the previous Office Action was filed on March 14, 2005 and the drawing filed on March 14, 2005 was objected. Applicant respectfully submits that these statements are incorrect. The previous reply to the previous Office Action of September 8, 2004 was filed on December 7, 2004. The drawing objection was overcome by the previously filed amended Fig. 22. The present Office Action does not provide any explanation as to which figure of the drawing was objected and why. Therefore, Applicant presumes that the above statements were made in error.

In this Amendment, Applicant has amended Claims 11, 13, 28 and 29, and cancelled Claims 14, 30, 34 and 35 without prejudice or disclaimer. Claims 11, 13, 28 and 29 have been amended to overcome the rejection and further specify the embodiments of the present invention. It is respectfully submitted that no new matter has been introduced by the amended claims. All claims are now present for examination and favorable reconsideration is respectfully requested in view of the preceding amendments and the following comments.

REJECTIONS UNDER 35 U.S.C. § 112 FIRST PARAGRAPH:

Claims 11 – 15, 17 – 20 and 28 – 35 have been rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to satisfy the written description requirement and containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

It is respectfully submitted that the rejection is incorrect. More specifically, the limitation “gradation levels equal to or lower than a predetermined level” is disclosed on page 26, lines 17 – 21 of the originally filed specification. Any person of ordinary skill in

the art can understand and decide “a predetermined level” which depends on specifications of a display apparatus made under the present invention. In addition, the limitation “first, second and third dither coefficient pattern signal” are disclosed in Fig. 17 and the corresponding disclosure on page 26, lines 12 – 35 of the specification, in which the dither coefficient generator 32, the dither coefficient selector 33 and the dither coefficient adjuster 34 produce a “first” dither coefficient pattern signal, a “second” dither coefficient pattern signal, and a “third” dither coefficient pattern signal, respectively.

Therefore, the rejection under 35 U.S.C. § 112, first paragraph is incorrect. Accordingly, withdrawal of the rejections under 35 U.S.C. § 112, first paragraph, is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 112 SECOND PARAPGRAPH:

Claims 11 – 15, 17 – 20 and 28 – 35 have been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is respectfully submitted that the amended 11, 13, 28 and 29 clearly point out and define the embodiment of the present invention. As indicated above, the terms “gradation levels equal to or lower than a predetermined level” and “first, second and third dither coefficient pattern signal” are supported by the specification and clearly understandable to a person of ordinary skill in the art. A person of ordinary skill in the art can understand and decide “a predetermined level” which depends on specifications of a display apparatus made under the present invention.

Therefore, the rejection under 35 U.S.C. § 112, second paragraph, has been overcome. Accordingly, withdrawal of the rejections under 35 U.S.C. § 112, second paragraph, is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 102:

Claims 13, 15, 17 – 20, 28, 29, 31 – 33 and 35 have been rejected under 35 U.S.C. § 102 (e) as allegedly being anticipated by Ishida et al. (US 6,069,609), hereinafter Ishida.

Applicant traverses the rejection and respectfully submits that the present-claimed invention is not anticipated by the cited reference. At first, Claim 35 has been cancelled without prejudice or disclaimer. The rejection to this claim is moot. In addition, Claim 13, 28 and 29 have been amended to a more specified embodiment of the present invention, in which weighting is applied to each dither coefficient for components of the input video signal, the components having gradation levels equal to or lower than a predetermined level (page 26, lines 17 – 21); and the gradation levels are divided into low to high gradation groups in the order of level of the gradation, in which the weighting to be applied is constant in each gradation group whereas larger for lower gradation groups, such as shown in Fig. 11.

Fig. 11 shows that the gradation levels are divided into low gradation groups, such as a group (0 – 15), to high gradation groups such as a group (48 – 63) in the order of level of the gradation. Weighting to be applied is constant in each gradation group, for example, (5, 3, -3 and -5) is applied at every gradation level in the group (0 – 15). However, it is larger for lower gradation groups, for example, the largest (5, 3, -3 and -5) for the lowest group (0 – 15) whereas the smallest (2, 1, -1 and -2) for the highest group (48 – 63).

The Examiner cited Fig. 1 and Table 1 of Ishida in the rejection. It is respectfully submitted that Fig. 1 and Table 1 of Ishida teach division of one frame into subframes in PDP as discussed in the background section of the specification of the present invention (page 1, lines 12 – 15). This is the frame division for displaying a halftone image involving shades or gradations in PDP. When a video data has 8 bits, an image can be displayed with 256 gradations. The easiest way of frame division for 8 bits is division of

1 frame into 8 subframes (Fig. 1 of Ishida shows 6 subframes). The 8 nits from the least significant bit to the most significant bit are applied to the 8 subframes. In displaying, for example, when “00000001” are applied, the subframe SF1 is on whereas the subframes SF2 to SF8 are off; and, when “00001000” are applied, the subframe SF5 is on whereas the subframes SF1 – SF4 and SF 6 – SF8 are off. The subframes are given weighting of intensity “1, 2, 4, 8, 16, 32, 64 and 128”, such as shown in Table 1 of Ishida. Gradation is 128 when the subframe SF8 is on. Gradation is 3 when the subframe SF1 and SF2 are on. There are several ways for frame division. Ishida teaches division of 1 frame into 6 subframes. The number of subframes may be larger than the number of bits. However, this frame division has no relationship to the present invention as claimed.

In the present invention as amended, gradation levels equals to or lower than a predetermined level (page 26, lines 17 – 21) are divided into low to high gradation groups in the order of level of the gradation, such as the groups (0 – 15), (16 – 31), (32 – 47) and (48 – 63) in Fig. 11. The Examiner indicated that Ishida teaches a frame is divided into six subframes SF1 to SF6 in its Fig. 1. Applicant respectfully submits that it is not division of gradation but frame. Moreover, a “group” involves several matters. However, each division in Fig. 1 and Table 1 of Ishida has just one subframe and one intensity level. This is not grouping.

In addition, in the present invention as amended, weighting to be applied is constant in each gradation group, for example, in Fig. 11 (5, 3, -3 and -5) is applied at every gradation level in the group (0 – 15). However, it is larger for lower gradation groups, for example, the largest (5, 3, -3 and -5) for the lowest group (0 – 15) whereas the smallest (2, 1, -1 and -2) for the highest group (48 – 63). Ishida does not teach such weighting based on gradation grouping.

In frame division in PDP, such as those disclosed in Ishida, one frame having a certain period is divided into several subframes, and these subframes are turned on (lighted) or off (non-lighted) to display a halftone image of one frame with gradations, with the subframes being applied weighting on lighting period.

In summary, Ishida teaches frame division, which has no relationship with gradation grouping in the present invention. Therefore, the newly presented claims are not anticipated by Ishida and the rejection under 35 U.S.C. § 102 (e) has been overcome. Accordingly, withdrawal of the rejection under 35 U.S.C. § 102 (e) is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 103:

Claims 11, 12, 14, 30 and 34 have been rejected under 35 U.S.C. § 103(a), as allegedly being obvious and unpatentable over Ishida in view of Sakano (US 5,144,456), hereinafter Sakano.

Applicant traverses the rejection. It is respectfully submitted that in view of the presently claimed invention, the rejection has been overcome. At first, Claim 14, 30 and 34 have been cancelled without prejudice or disclaimer. The rejection to these claims is moot. In addition, Claim 11 has been amended to include “a generator to generate a plurality of dither coefficient signals, each coefficient signal carrying dither coefficients arranged in a matrix, weighting being applied to each dither coefficient for components of the input video signal, the components having gradation levels equal to or lower than a predetermined level, the gradation levels being divided into low to high gradation groups in the order of level of the gradation, in which the weighting to be applied is constant in each gradation group whereas larger for lower gradation groups.” Applicant respectfully submits that neither Ishida nor Sakano discloses the above feature. As stated above, Ishida teaches frame division, which has no relationship with gradation grouping in the present invention

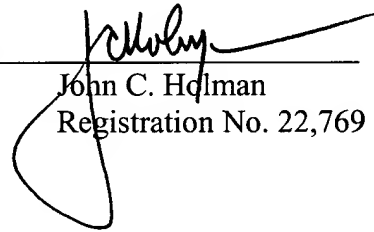
Therefore, nowhere in prior art has suggestion or incentive to combine Ishida and Sakano to achieve the invention as currently claimed. One of ordinary skilled in the art would not discern the present invention at the time of its invention. Accordingly, withdrawal of the rejection under 35 U.S.C. § 103 is respectfully requested.

Having overcome all outstanding grounds of rejection, the application is now in condition for allowance, and prompt action toward that end is respectfully solicited.

Respectfully submitted,

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